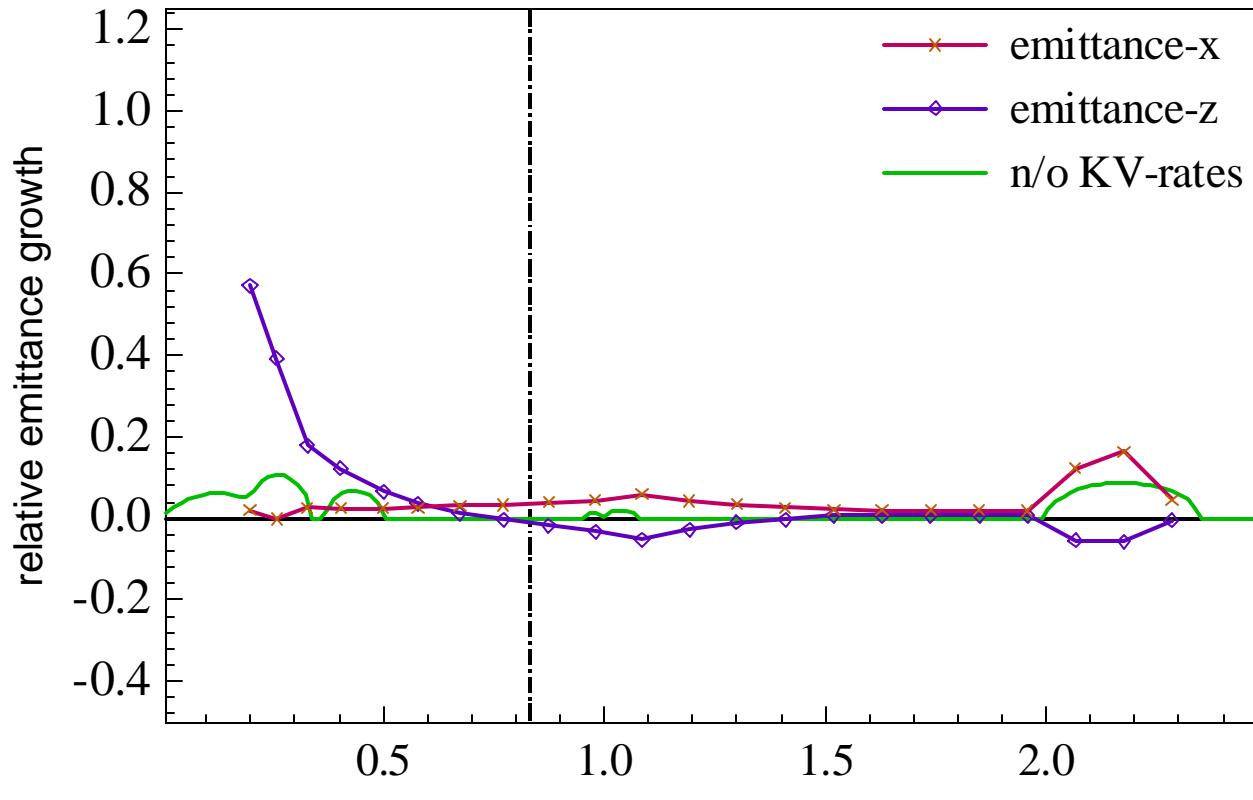


Remarks on

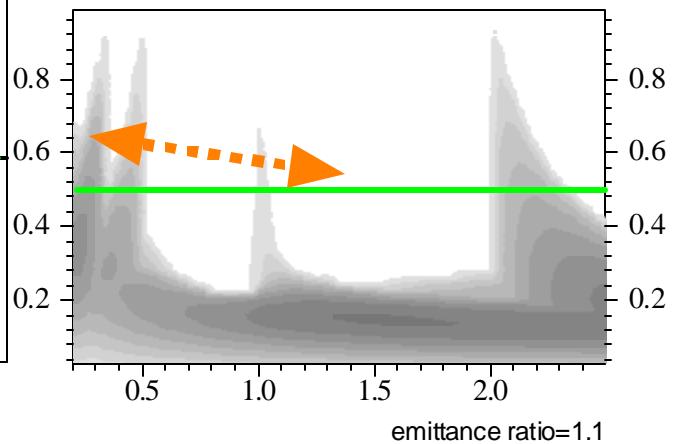
- ongoing work for linac resonances
- Ring resonance crossing & transverse impedance

KV-theory vs. IMPACT-3D*-simulation (rms matched)

(1.2/0.5)

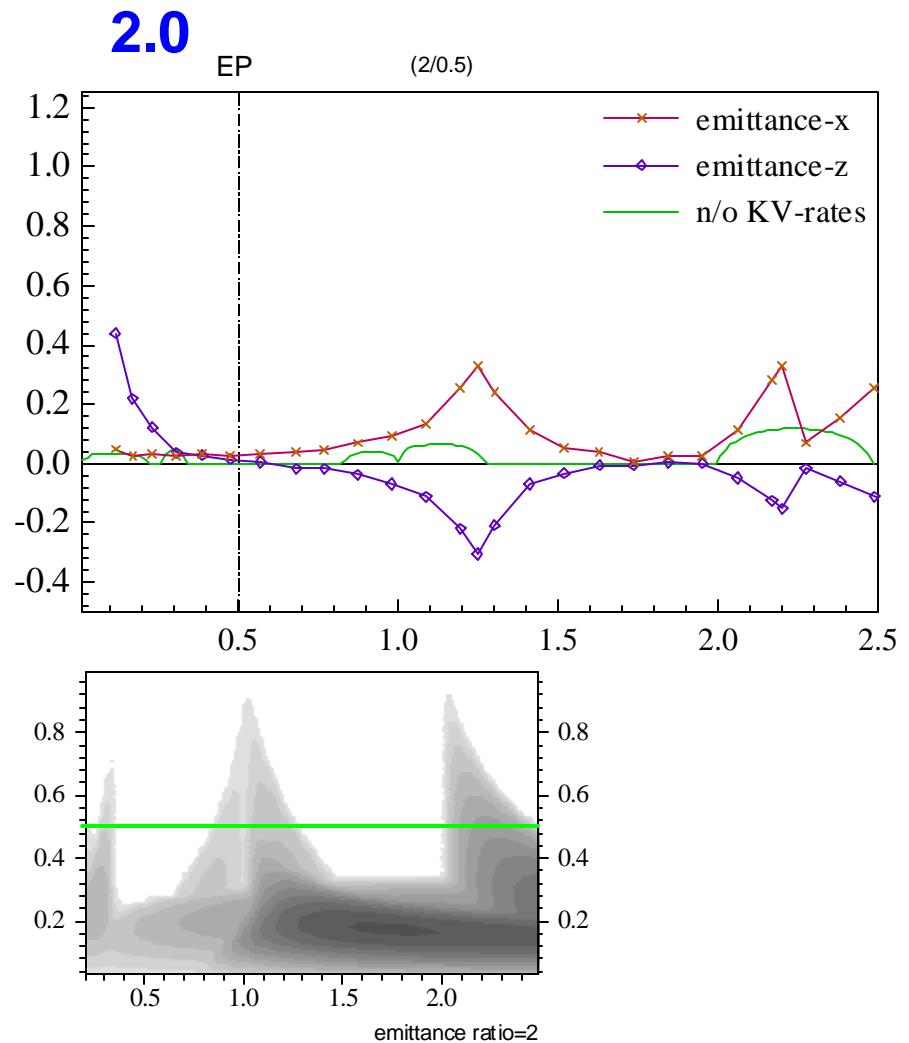
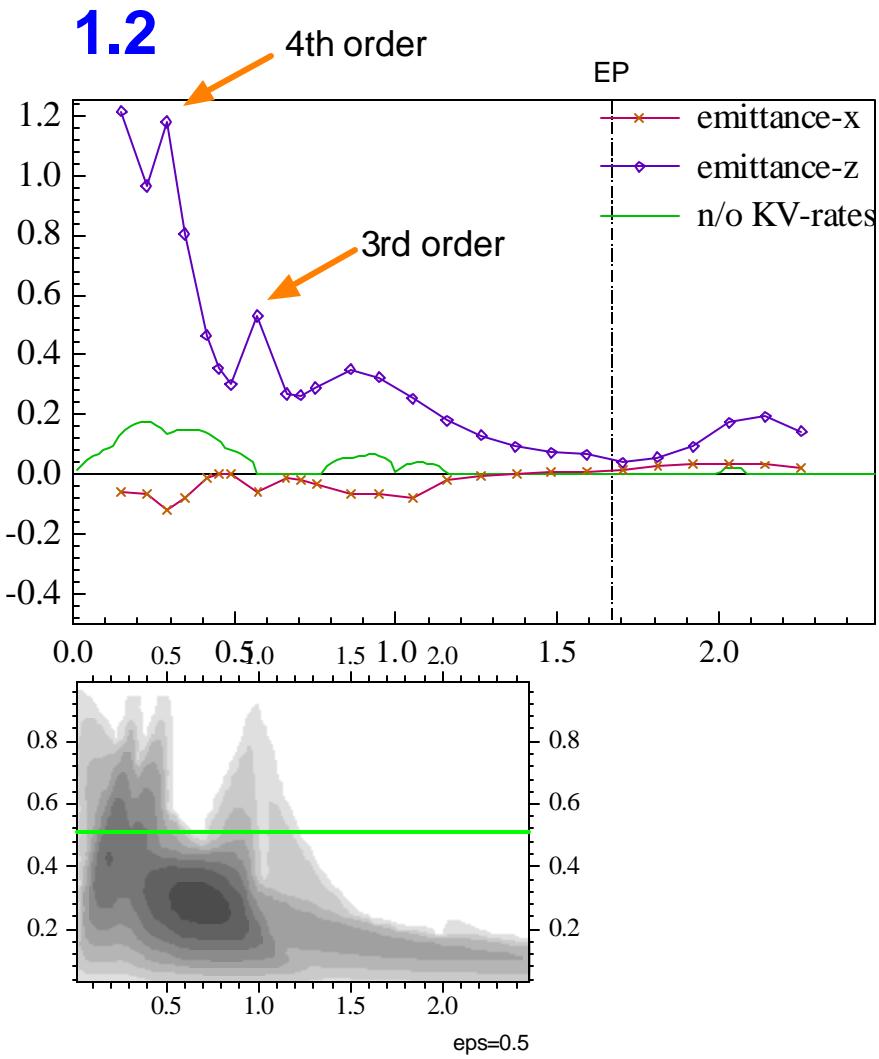


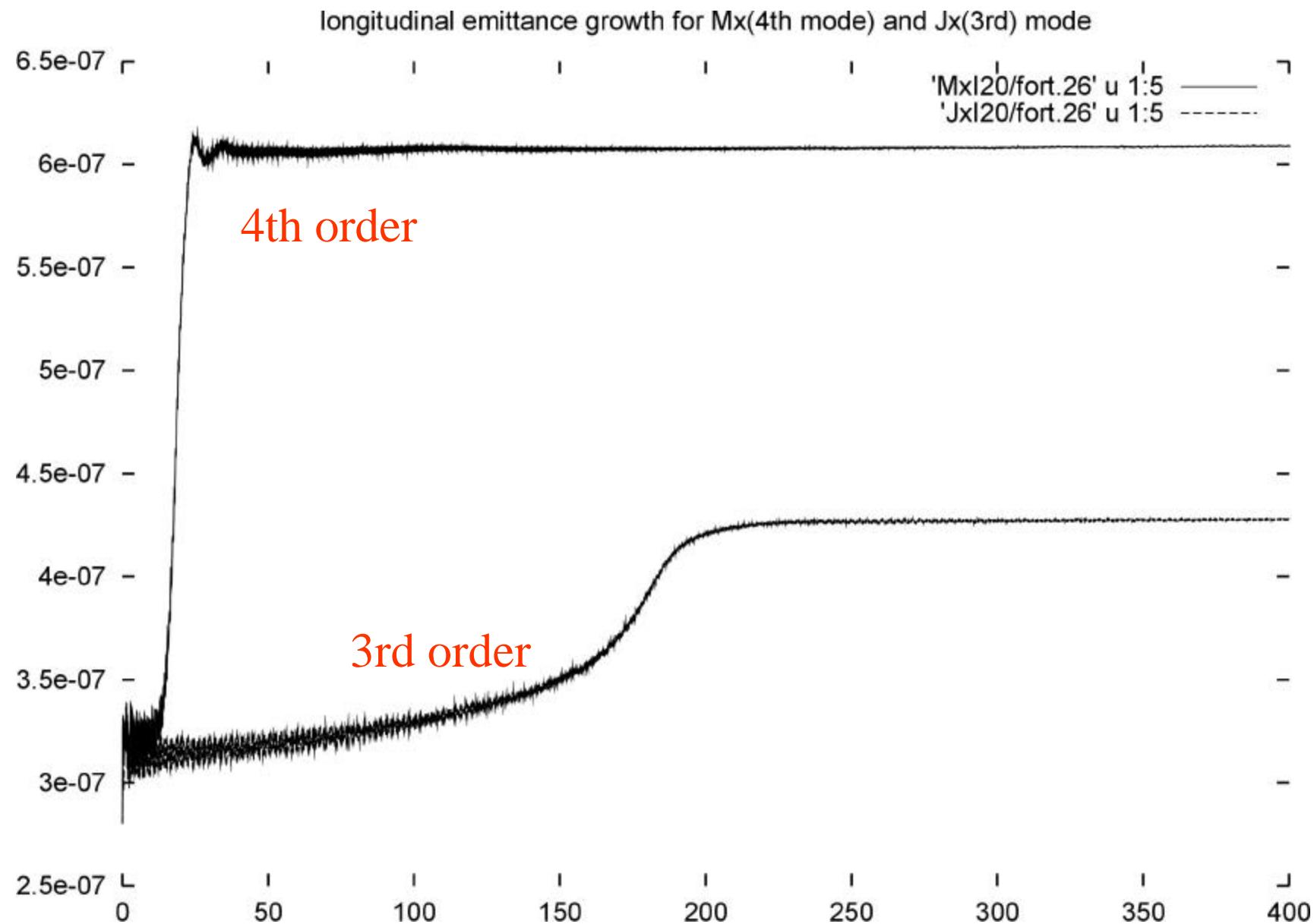
$k_x/k_{ox}=0.5$
emitt. ratio (E_z/E_x):
1.2



*J. Qiang

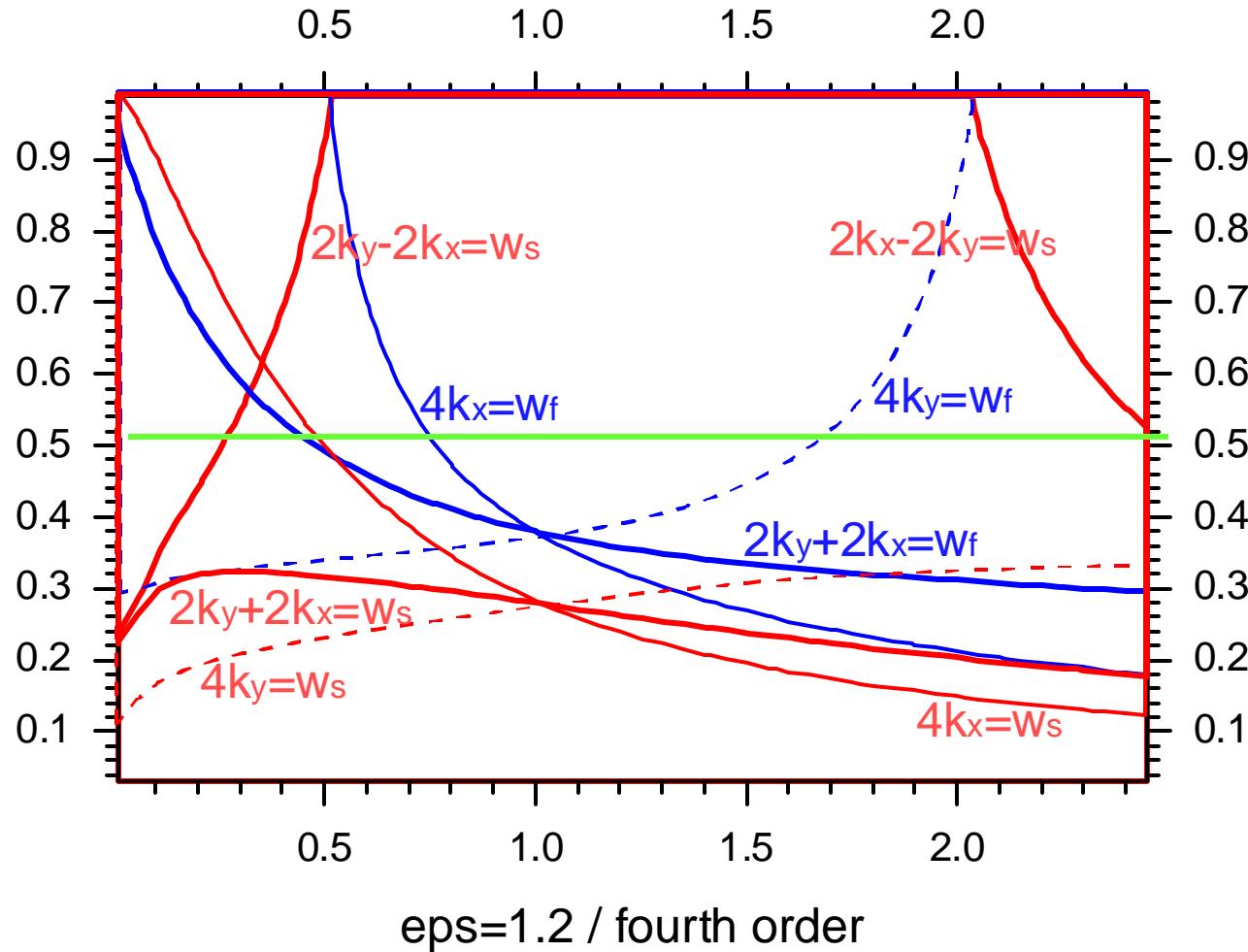
KV-theory vs. IMPACT-3D-simulation (rms matched)





Next step: consider different mismatch eigenmodes and possible resonances driven by them

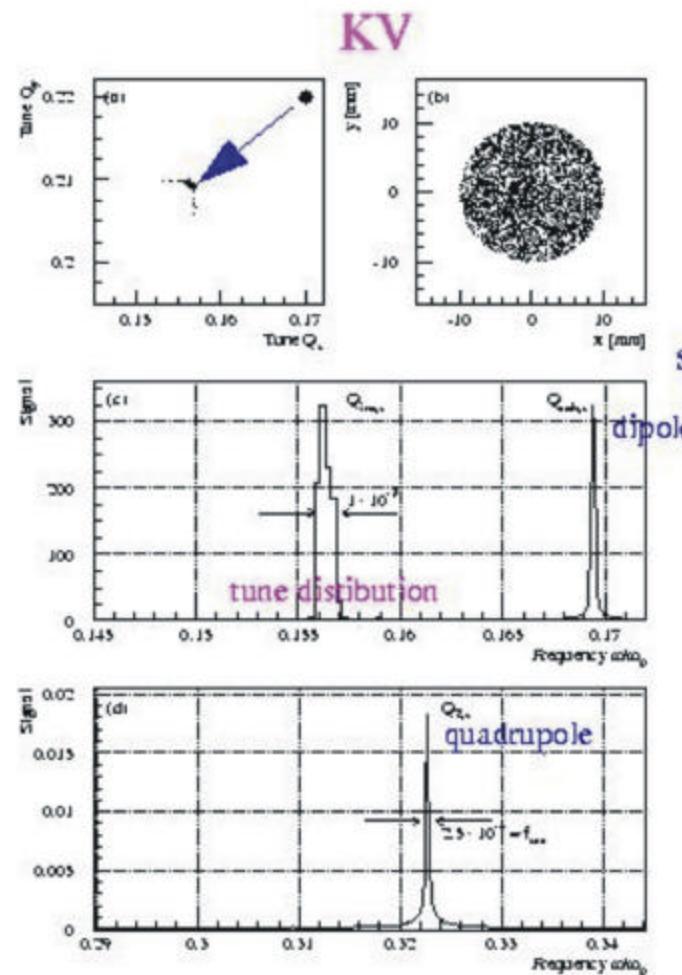
- Create scans for 2D simulation (different eigenmodes/emittance ratios 0.6 ... 2)
- Identify critical issues (rms emittance/99% emittance – halo)
- Repeat with 3D IMPACT for cases of relevance to SNS



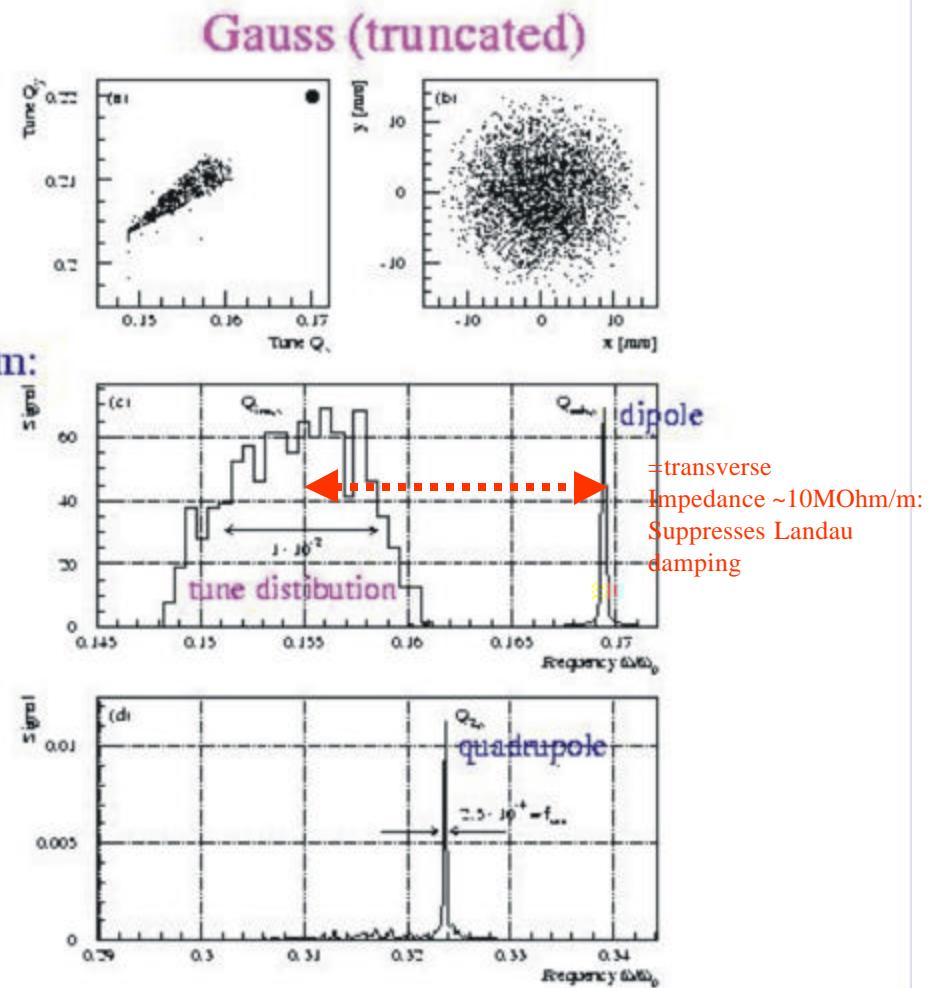
Simulation results for noise spectra comparing KV and Gauss



coherent line independent of distribution, no broadening



spectrum:



Issues:

Single particle resonance crossing acceptable (coherent tune crossing not!)

- if force from coherent motion compensates lattice driven resonant force (for KV or small spread)

limit: can coherent force decohere?

- large spread of incoherent frequencies
 - main part from synchrotron motion
 - role of longitudinal density fluctuations?
- consider transverse impedance as additional force (Landau damping easily suppressed)

Example:

Measured response from rf exciter (GSI-synchrotron, coasting beam):

No signal from incoherent spectrum

